

Patent Claims:

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1. A method of estimating the pitch of a speech signal
 5 (2), said method comprising the steps of:
 - dividing the speech signal into segments,
 - calculating for each segment a conformity function for the signal, and
 - detecting peaks in the conformity function,
 10 characterized in that the method further comprises the steps of:
 - estimating an average distance between said peaks, and
 - using the estimate of said average distance as an
 15 estimate of the pitch.

 2. A method according to claim 1, characterized
 20 in that it further comprises the steps of:
 - sampling the speech signal to obtain a series of samples, and
 - performing said division into segments such that each segment has a fixed number of consecutive samples.

 - 25 3. A method according to claim 1 or 2, characterized in that it further comprises the steps of:
 - estimating a set of filter parameters using linear predictive analysis (LPA),
 - 30 • providing a modified signal (26) by filtering the speech signal through a filter based on said estimated set of filter parameters, and
 - calculating said conformity function of the modified signal.

4. A method according to any one of claims 1 to 3, characterized in that said conformity function is calculated as an autocorrelation function.

5 5. A method according to any one of claims 1 to 4, characterized in that it further comprises the steps of:

- calculating for each peak in the conformity function the difference between the position of the peak and the estimate of said average distance, and
- 10 • providing an improved estimate of the pitch by selecting as the improved estimate the position of the peak having the smallest value of said difference.

15 6. A method according to claim 5, characterized in that it further comprises the step of:

- selecting, if the peak having the smallest value of said difference is represented by a number of samples, the sample having the maximum amplitude of said conformity function as said improved estimate of the pitch.
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7. Use of the method according to any one of claims 1 to 6 in a mobile telephone.

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8. A device adapted to estimate the pitch of a speech signal (2), and comprising:

- means (3) for dividing the speech signal into segments,
- 30 • means (5) for calculating for each segment a conformity function for the signal, and
- means (6) for detecting peaks in the conformity function,

characterized in that the device is further adapted to:

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- estimate an average distance between said peaks, and

- use the estimate of said average distance as an estimate of the pitch.

9. A device according to claim 8, c h a r a c t e r -
5 i z e d in that it further comprises:

- means (3) for sampling the speech signal to obtain a series of samples, and
- means for performing said division into segments such that each segment has a fixed number of consecutive samples.

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10. A device according to claim 8 or 9,
c h a r a c t e r i z e d in that it further comprises:

- means (4; 24) for estimating a set of filter parameters using linear predictive analysis (LPA),
- means (4; 25) for providing a modified signal by filtering the speech signal through a filter based on said estimated set of filter parameters, and
- means (5) for calculating said conformity function of the modified signal.

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11. A device according to any one of claims 8 to 10,
c h a r a c t e r i z e d in that said conformity function is an autocorrelation function.

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12. A device according to any one of claims 8 to 11,
c h a r a c t e r i z e d in that it further comprises:

- means for calculating for each peak in the conformity function the difference between the position of the peak and the estimate of said average distance, and
- means for providing an improved estimate of the pitch by selecting as the improved estimate the position of the peak having the smallest value of said difference.

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13. A device according to claim 12, c h a r a c t e r -
i z e d in that it is further adapted to select, if the
peak having the smallest value of said difference is rep-
resented by a number of samples, the sample having the
5 maximum amplitude of said conformity function as said im-
proved estimate of the pitch.

14. A device according to any one of claims 8 to 13,
c h a r a c t e r i z e d in that the device is a mo-
10 bile telephone.

15. A device according to any one of claims 8 to 13,
c h a r a c t e r i z e d in that the device is an in-
15 tegrated circuit.